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IN THE CLAIMS:

1. (Previously presented) A method executed in hardware for simulating events in a physical system comprising the steps of:

assigning events of said physical system that are to be simulated to each of N processing elements (PEs); and

said N PEs simulating events in parallel, in a simulation step where each processing element (PE) simulates assigned events in blocks of that include M edge events, where M is approximately $e \log_e N$, e is approximately 2.71828, and an edge event is an event whose simulation in a processing element is directly affected by information originating in another processing element.

2. (Original) The method of claim 1 where each of said simulation steps comprises one or more iterations.

3. (Original) The method of claim 2 where each iteration comprises a simulation phase followed by a communication phase and an assessment phase.

4. (Original) The method of claim 3 where, in each communication phase, each of said PEs shares information with one or more other PEs from said N PEs, which information is needed by said other PEs to simulate edge events of said other PEs.

5. (Original) The method of claim 4 where said information shared by each PE in a communication phase of an iteration is related to events simulated by said each PE in said iteration.

6. (Original) The method of claim 4 where said assessment phase carried out by each of said PEs comprises the steps of

determining whether the existence of a simulation error can be excluded, and

directing that another simulation iteration is to take place when the existence of a simulation error cannot be excluded.

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7. (Currently Amended) The method of claim 6 further comprising a floor advancement step that is carried out in each of said PEs when said step of determining in said assessment phase concludes that there are no simulation errors in a simulation iteration, where the advancement step advances a simulation floor time of a present simulation step to form a modified simulation time floor, for simulating another block of M events in a next simulation step.

8. (Original) The method of claim 6 further comprising a step of advancing a simulation floor time from a simulation floor time of a present simulation step, to form a modified simulation floor time, for starting from said modified simulation floor time the simulation of another block of M events in a next simulation step, when said step of determining in said assessment phase concludes that there are no simulation errors in said present simulation step.

9. (Original) The method of claim 8 where said modified simulation floor time corresponds to the earliest simulation time of the Mth edge event simulated by said N PEs in said present simulation step.

10. (Original) The method of claim 4 where events are simulated serially in each simulation phase.

11. (Original) The method of claim 10 where for simulating a second event following a simulation of a first event,

a time interval is identified between a simulation time of said first event and a simulation time of said second event, and
said second event is identified for simulation.

12. (Original) The method of claim 11 where said second event is identified for simulation following a step of accounting for simulation of said first event and simulation of events in said other PEs from said N PEs.

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13. (Original) The method of claim 12 where said accounting is based on present knowledge of states of said other events.

14. (Currently Amended) The method of claim 12 where said ~~accounts~~ accounting for simulation of events in said other PEs from said N PEs accounts for events simulated during said time interval.

15. (Original) The method of claim 11 where said second event is identified by employing a first random number.

16. (Original) The method of claim 11 where said time interval is identified with a second random number.

17. (Original) The method of claim 16 where said second random number is set to said first random number.

18. (Original) The method of claim 15 where said first random number is derived from a random variable having a uniform distribution.

19. (Original) The method of claim 15 where the seriatim simulation of each event in said block of M events, in a first iteration starting from a given simulation floor time, employs an independently derived random number from said random variable, forming thereby a sequence of random numbers, and simulation of said block of M events in all subsequent iterations starting from said given simulation floor time employs said sequence of random numbers.

20. (Original) The method of claim 18 where the sequence of random numbers employed in one simulation step is different from a sequence of random numbers employed in another simulation step.